De Mundi Systemate

" ſtratione propoſitionis ſuperioris erit angulus FTN diſtantia ſolis " a loco nodi medio, angulus autem ATN diſtantia a loco vero, & " tangentes horum angulorum ſunt inter ſe ut TK ad TH.

" *Coroll.* Hinc angulus FTA eſt æquatio nodorum lunæ, ſinuſque " hujus anguli ubi maximus eſt in octantibus, eſt ad radium ut KH " ad $TK+TH$. Sinus autem hujus æquationis in loco quovis alio " A eſt ad ſinum maximum, ut ſinus ſummæ angulorum $FTN+ATN$ " ad radium: hoc eſt fere ut ſinus duplæ diſtantiæ ſolis a loco nodi " medio (nempe 2 FTN) ad radium.

Scholium.

" Si motus nodorum mediocris horarius in quadraturis ſit $16''. $ " $16'''. 37^{iv}. 42^{v}.$ hoc eſt in anno toto ſidereo $39^{\circ}. 38'. 7''. 50'''.$ " erit TH ad TK in ſubduplicata ratione numeri 9,0827646 ad nu- " merum 10,0827646, hoc eſt ut 18,6524761 ad 19,6524761. Et pro- " pterea TH ad HK ut 18,6524761 ad 1. hoc eſt ut motus ſolis in " anno ſidereo ad motum nodi medium $19^{\circ}. 18', 1''. 23'''\frac{2}{3}.$

" At ſi motus medius nodorum Lunæ in 20 annis Julianis ſit " $386^{\circ}. 50'. 15''.$ ſicut ex obſervationibus in theoria lunæ adhi- " bitis deducitur: motus medius nodorum in anno ſidereo erit $19^{\circ}.$ " $20'. 31''. 58'''.$ Et TH erit ad HK ut $360^{gr}.$ ad $19^{\circ}. 20'. 31''. 58'''.$ " hoc eſt ut 18,61214 ad 1. unde motus mediocris horarius nodorum " in quadraturis evadet $16''. 18'''. 48^{iv}.$ Et æquatio nodorum maxi- " ma in octantibus $1^{\circ}. 29'. 57''.$

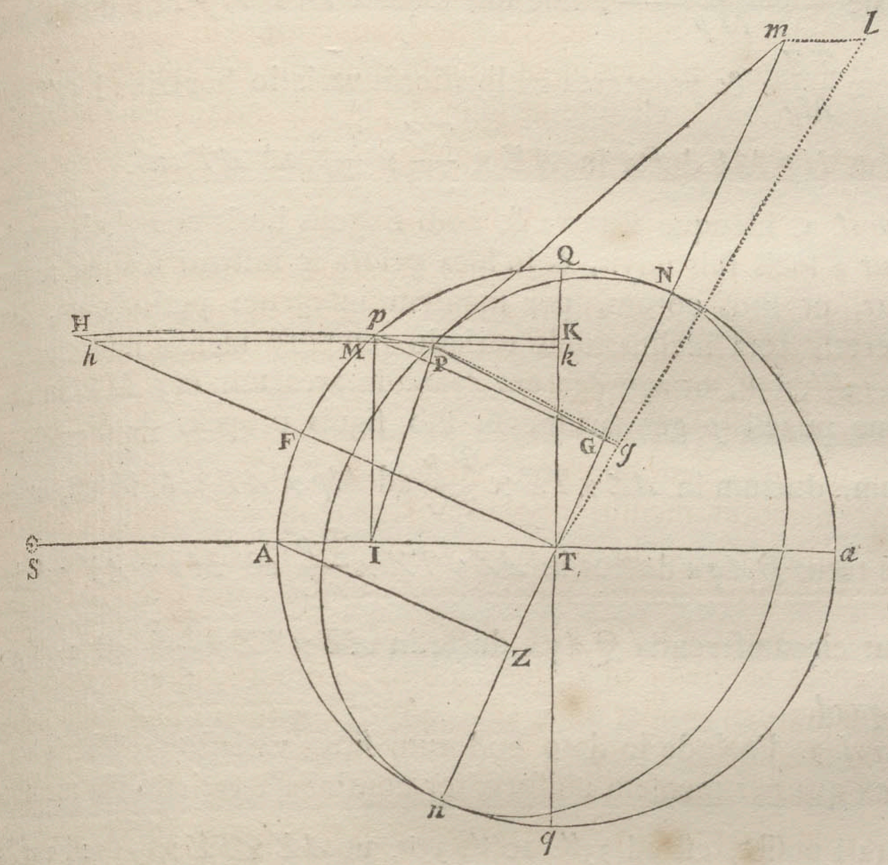
PROPOSITIO XXXIV. PROBLEMA XV.

Invenire variationem horariam inclinationis orbis lunaris ad planum eclipticæ.

Deſignent A & a ſyzygias; Q & q quadraturas; N & n nodos; P locum lunæ in orbe ſuo; p veſtigium loci illius in plano eclipticæ, & mTl motum momentaneum nodorum ut ſupra. Et ſi ad lineam Tm demittatur perpendiculum PG, jungatur pG, & producatur ea donec occurrat Tl in g, & jungatur etiam Pg: erit angulus PGp inclinatio orbis lunaris ad planum eclipticæ, ubi luna verſatur in P; & angulus Pgp inclinatio ejuſdem poſt momentum temporis completum;

pletum; ideoque angulus GPg variatio momentanea inclinationis. Eſt autem hic angulus GPg ad angulum GTg ut TG ad PG & Pp ad PG conjunctim. Et propterea ſi pro momento temporis ſubſtituatur hora; cum angulus GTg (per prop. xxx.) ſit ad angulum $33''.$

Liber Tertius.



$10'''. 33^{iv}.$ ut $IT \times PG \times AZ$ ad AT *cub.* erit angulus GPg (ſeu inclinationis horaria variatio) ad angulum $33''. 10'''. 33^{iv}.$ ut $IT \times AZ \times TG \times \frac{Pp}{PG}$ ad AT *cub.* *Q. E. I.*

Hæc ita ſe habent ex hypotheſi quod luna in orbe circulari uniformiter gyratur. Quod ſi orbis ille ellipticus ſit, motus mediocris nodorum minuetur in ratione axis minoris ad axem majorem; uti ſupra expoſitum eſt. Et in eadem ratione minuetur etiam inclinationis variatio.

Corol.